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Digitalisation of Higher Education in Zimbabwe: A Challenging Necessity and Emerging Solutions

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Abstract

This article examines the current thrust to digitalize higher education in Zimbabwe as the country strives to attain its vision to become an upper middle-income economy by 2030. In this regard, Innovation and Industrialisation have been added as missions of special emphasis at all education levels. This entailed that Higher Education Institutions (HEIs) adopt the Education 5.0 model and accelerate digitalisation of their operations and curricula. Further impetus of the digitalisation drive emerged from the responses to the COVID-19, such as lockdowns and travel restrictions. This article examines the policy framework that was put in place to digitalise curricula and operation systems in HEIs. A desk review of literature was conducted to examine efforts underway to embrace digitalisation as a new feature and future of higher education. The study established that the majority of institutions have tended to adopt externally developed digitilisation models without adequately adapting them to local circumstances. The study recommends the need for distinct digitalisation policies at both Ministry and HEIs levels, to guide and prepare for the 'disruptive' effects of digitalisation.

Keywords: digitalisation, economic development, Education 5.0, e-learning, government policy, industrialisation, innovation, higher education institutions, Zimbabwe

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Introduction

Zimbabwe is currently classified as a lower-middle-income economy that is just above the low-income country threshold. However, the country has committed itself to attain an upper middle-income status by 2030. Universities and other higher education institutions (HEIs) have been challenged to play a significant role in the attainment of the National Vision 2030 and its related strategies and plans. As the Permanent Secretary of the Ministry of Higher and Tertiary Education Innovation Science and Technology Development (MHTEISTD) Professor Fanuel Tagwira stated in his

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Statement to the Ministry Strategic Plan 2019-2023, "Our Higher and Tertiary Institutions must become primary tools for national development" (p, III). The Ministry Strategic Plan provided the policy direction for both private and public universities in the country. In the Foreword to the Strategic Plan, the Minister Professor Dr Amon Murwira emphasised the need for the country to embrace, "… cutting-edge, competitive, universal scientific and technological knowledge …." (p. II) The Strategic Plan was presented as "… a promise to deliver a competitive, industrialised and modernised Zimbabwe through heritage-based higher and tertiary education science and technology development." (p. II)

To ensure the alignment of the activities of HEIs to the national vision, development plans, and strategies, the Government, through the MHTEISTD introduced Education 5.0 to replace Education 3.0 which was anchored on three missions that comprised: Research, Teaching and Community Engagement. Also, Innovation and Industrialisation were introduced as additional missions of special emphasis under Education 5.0. The adoption of these two additional missions has entailed that Higher Education Institutions (HEIs) accelerate digitalisation of their operations and curricula. While no explicit policy on digitalisation of HEIs has been pronounced, the emphasis by Government to include innovation and industrialisation as two additional missions of universities have resulted in a strong digitalisation drive.

Prior to the current impetus towards digitalisation of HEIs globally, there had already been a gradual but widespread adoption of information and communication technologies (ICTs) in education over the past two decades. Almost every aspect of humanity has been impacted by digitalisation. Operations have become more competitive with an emphasis on maintaining proficiency in both developed and growing markets. There are rapid changes in both the private and public sectors as digitalisation has increasingly served as a fundamental platform for conducting business. Digital technologies, according to Remko (2020), now permit collaboration for the interaction in global supply chains. Over the past ten years, information and communication technology has grown more widely in Sub-Saharan Africa including in Zimbabwe, with the development of; voice technology, fixed line telephone services, internet protocol (IP) phones, and the expansion of internet services. As the Zimbabwe National Policy for Information and Communication Technology (ICT) Policy document stated, "ICTs are given a key role as enablers for all other sectors to leapfrog in their development" (2016, p. 3). While digitisation of administrative and management systems and records was adopted at HEIs in Zimbabwe at the beginning of the current Millenium, digitalisation in teaching and learning was embraced almost a decade later and at a very slow pace until it was spurred by the COVID-19 pandemic (Tsvuura & Ngulube, 2020).

According to Thuy (2019), strong information technology development and utilisation in education has created opportunities for educators, students, and administrators to design and use efficient tools and instructional methods internationally. The technological revolution has aided people from various socioeconomic backgrounds and nations in developing useful technologies to build a more human-centred future (citation). The digital learning revolution has increased the efficiency of educational institutions by raising faculty members' and students' learning performance as well as the standard of instruction, administration, and working conditions (Abdulrahim & Mabrouk, 2020). While this might be true for developed countries, the situation is different in Zimbabwe and other developing countries where the technological uptake has remained limited. The high financial investments required to develop and maintain the infrastructure required to provide affordable, accessible, and sustainable digital platforms are absent and beyond the reach of their weak economies. Attitudes have also contributed to the sluggish uptake of ICTs in educational provision. Mpofu & Mpofu (2023) established that while "…some lecturers and students were enthusiastic about the implementation of online learning, others were sceptical of its effectiveness and its impact on the quality of education, inclusiveness, and the quality of graduates produced" (p. 73).

Digitalisation in both developed and developing countries was spurred by the global COVID-19 pandemic, which not only impacted health systems, but also educational systems. The pandemic forced policymakers and educators to come up with comprehensive solutions to minimise the negative effects of disruptions such as lockdowns and other social distancing protocols that were enunciated by the World Health Organisation and enforced locally. In attempts to mitigate the associated challenges, education institutions were forced to modify their teaching and learning strategies (Alhumaid et al., 2020). In this context, the adoption of digital learning was a sensible global strategy to speed up adjustments to a new standard and improve educational quality (Humayun, 2020). In Zimbabwe, HEIs used webinars, e-learning platforms, and other technological means to provide instructors, students, and parents with teaching and learning instructions virtually during the lockdowns and continued even after the pandemic. Teaching and learning are now largely conducted through block-release where students spend most of the time away from campus as learner-centred approaches that are supported digitally are now being emphasised.

Although there were some difficulties with technology, courses, teachers, and students, digital learning opened up lucrative potential for educational institutions (Händel et al., 2020; Shehzadi et al., 2020). The challenges included the constraints of technological platforms, poor internet connection, a lack of student-teacher engagement, and teachers' and students' inadequate understanding of the online learning system, which was a factor in how well learning took place in a virtual setting. In Zimbabwe, the intermittent electricity supply further exacerbated connectivity to online platforms. Additionally, the future of online learning would depend on one's capacity to adjust to sudden changes in the environment (Dinh & Nguyen, 2020). The knowledge production system in Zimbabwean tertiary education still lags behind some of the developing and developed countries. Ondari-Okemwa (2011) established that institutions of higher education in Sub-Saharan Africa faced numerous challenges in producing knowledge. Such cchallenges include poor infrastructure, declining budgetary allocations, brain drain and competition in knowledge production. The situation has exacerbated due to economic challenges that have continued to prevail in developing countries such as Zimbabwe. It is in this context that this article examines the policy framework and current thrust to digitalise higher education in Zimbabwe. Lastly, we also explore sustainable solutions to fully embrace digitalisation as a feature in the future of HEIs in Zimbabwe.

Literature Review

The use of digital technologies in education has been on the rise globally over the last few decades. During pandemics, major cyber risks are caused by people's actions as well as failures of systems and technology (Wang & Alexander, 2021). Major technologies include 5G, blockchain, telemedicine, and big data, cyber-attacks, and cyber risks. Blockchain helps, for instance, to mitigate risks of pandemics and improves the privacy and security of health systems. COVID-19 generated new challenges in cybersecurity (Manalu, 2020; Gaffar, 2020). Many people had to work at home, chose telemedicine, and performed distance learning and online schooling due to the pandemic (Wang & Alexander, 2021). Khan et al. (2020) listed malware, business email compromise, malicious websites, ransomware, malicious domains, spam email, and nasty social media messaging as the deadly cyber security threats in the world. Ng et al. (2015) posit that digital systems in education are on the rise globally, coming in the form of computing devices for content delivery, cloud storage, learning management systems, online learning applications, computer-based assessment, and training systems. Educational technologies have become integral to the teaching and learning processes, especially during pandemics such as COVID-19. The use of smart technologies is prioritised in Zimbabwe's National Development Strategy 1 (NDS1) to increase the use of information and communication technology.

Singar and Akhilesh (2020) point out that higher educational institutions are cyber security targets because they have a very intricate digital footprint in relation to the quantity and variety of data they hold and have a lot of actions on the internet and collective computing power. Borgman (2018) explains this, pointing out to the fact that nowadays most educational institutions are digitised, and they are continuously processing, consuming, and producing data that is collected from students and used to access services. The data collection practices have raised concerns about students' privacy (Peterson, 2016). Educational institutions were among the first to use the internet for information sharing and improving academic communication (Peters and Roberts, 2015). "The first network that resembles today's internet, ARPANET, was designed initially to facilitate resource-sharing among academics, not for interpersonal communications" (Fouad, 2021, p. 144).

More than ten years after the introduction of the national ICT policy, Zimbabwe has accredited tertiary institutions but has not integrated information and communication technology into the curriculum up to tertiary level (Edet & Ekpoh, 2017; Lisene & Jita, 2018; Muchemwa, 2017). The new curriculum has given the tertiary education sector a chance to benefit from the fiscus and replace the traditional three-mission Education 3.0 that did not prioritise innovation and industrialisation which are key aspects in the global technological advancement environment (Guvhu & Museva, 2020). The recent introduction of Education 5.0 in the higher and tertiary system has finally provided Zimbabwe with the innovation thrust that has been long overdue.

The fundamental ideas of critical thinking, problem solving, creativity, and innovation were hardly ever required or evaluated in Education 3.0 (Chirume, 2020). Education 5.0, which was introduced as a panacea, has altered how things are done and enhanced the prior Education 3.0 system. According to Godin (2018), innovation is a tool for resolving societal issues, particularly those related to the economy that directly affect the education sector. The introduction of Education 5.0 in the country coincided with the advent and rapid spread of the COVID-19 pandemic globally. The pandemic activated the need for innovation by the education and other sectors locally and internationally. Higher and tertiary education institutions in Zimbabwe were compelled to accelerate the adoption of information and communication technology (ICT) as demanded

by social distancing protocols under the pandemic. The adoption of open and distance e-learning was no longer an option, but a necessity as lockdowns where enforced nationally and face-to-face interaction in teaching and learning was curtailed for long periods of time, particularly between 2020 and 2021. All HEIs were caught unaware and were compelled to adopt and adapt online and e-learning teaching and learning modes to minimise the dangers posed by the pandemic. Most staff and students could not quickly adjust to the new independent ways of teaching and learning as many of them were not even able to interact through the virtual platforms that universities had to adopt and adapt to, such as the Moodle-based e-Learning Management System (e-LMS) that the University of Zimbabwe adopted and adapted from open online sources. HEIs are still to design and develop e-LMSs that are based on local needs and circumstances such as affordability of both hardware and software as well as intermittent electrical power supplies.

From the perspective of the education sector generally and higher education in particular, the adoption of digital platforms and methodologies in teaching and learning is a new reality that has perpetuated even after the COVID-19 pandemic has subsided. It can only be continuously improved in efforts to develop true technological learning ecosystems that develop digital citizenship competence universally and on equal terms for all (Gisbert & Lázaro, 2020). By making all the necessary technological infrastructure and resources (such as libraries, learning and research resource centres, laboratories, and digital classrooms) accessible to both their own academic communities and the public, higher education institutions (HEIs) can play a significant role in such an ecosystem. Additionally, HEIs should support open laboratories that adopt a social viewpoint and are free for any members of the public who desire to visit to foster the formation of digital citizenship. Such laboratories offer a setting and follow a strategy whereby various participants work together to update the processes of discovery and production by utilising procedures that are open and collaborative, both analogue and digital (Lépine & Martin-Juchat, 2020). These expectations are within the capacity of HEIs in Zimbabwe, particularly under the Education 5.0 thrust.

In East Africa, Kenyan schools have encountered a variety of obstacles in establishing the digital economy. Due to inadequate regulation, lack of digital hygiene, and unrestricted access to digital infrastructure, Africa's digital economy has experienced cyber threats and risks like those experienced by other participants in the digital domain (Brand & Todhunter, 2016). According to Kiriti-Nganga and Mbithi (2021), the capacity of people and businesses to access and buy digital technology in Africa is hampered by a lack of infrastructure and restricted access to money.

Ndume et al (2008) stresses that the entrenched traditional paperwork learning culture, particularly among the older academics and students coming from teacher-centred learning systems at school level, is one of the obstacles in adapting to eLearning. Most Zimbabwean academic institutions are more attached to the use of this type of learning that makes it more difficult for academic staff to adopt the new systems that come with technology. Although academic stakeholders are now slowly realising the potential of Information and Communication Technology in conducting their daily activities, there remains a significant number of academic staff, particularly the older generation, and students who are not acquainted with the use of ICTs and are not willing to shift to digital teaching and learning modes. Similar observations were made by Mhlanga et al. (2022) in the case of South Africa as they stated, “The largest challenge that higher educational institutions have in adapting to digital transformation is adjusting to new teaching techniques and learning environments and models, according to popular belief.” (p. 14). Their findings and conclusions in South Africa that are also true for Zimbabwe as they pointed to the need to build digital capabilities, despite human resistance to change, as technology can complement and assist educators in their work. Switching to online learning can help to level the playing field by increasing accessibility to quality education. There is no clear, comprehensive, and coordinated approach to digital transformation in higher education. Most lecturers urgently require digital pedagogy training to address the challenges of online learning that is difficult for learners in remote areas (Mhlanga et al. 2022).

Digital Related Theories

This section focuses on theories related to the realisation of a digital economy. The concept of ‘digital economy’ was introduced in 1995 by Dan Tapscott, a business consultant. Focusing on the knowledge gap hypothesis, or the Leap-frogging perspective, this section analyses the digital economy in the developing world from a theoretical perspective to bring out underlying issues that cut across specific economic contexts. The notion of leap frogging was originally used in the area of economic growth theories and industrial organisation studies focussing on competition among firms. From this perspective, areas that have poorly developed technology or economic bases can move themselves forward faster through adopting modern systems without taking middle steps, “Bypassing intermediate stages of technology through which countries have historically passed during the development process” (UNCTAD, 2018, p. 84). The hypothesis proposes that

big companies holding monopolies based on incumbent technologies are less likely to innovate. Small and incremental innovations lead a dominant firm to stay ahead. Sometimes major innovations permit new firms to leapfrog the traditional dominant firm. This phenomenon can also apply to leading countries in the digital economy. Developing countries can skip the stages followed by developed countries in the digital economy, thereby enabling them to catch up sooner or advance faster in terms of economic growth and development. The leapfrog can arise from the fact that a developed country has reduced earning rents from old technology. Developed nations have less incentive to innovate as compared to their potential rivals, the developing nations. A good example of leap frogging in the technological sector is the rapid uptake of mobile phones in Africa. UNCTAD (2018) posit that Africa has opportunities to leapfrog though it has limited capabilities to innovate.

According to the 'knowledge gap' hypothesis, the distribution of knowledge is uneven across the social system in the world. Just like wealth, the hypothesis posits that people of high socio-economic status are at a lead because they find out about new sources of information first and because they can afford access to them while they are new. The knowledge gap hypothesis is often referred to in connection with social consequences of information sharing. However, the assertion of the hypothesis can also be applied to what happens in the digital economy. The flow of digital infrastructure is not homogenous across the economic divide due to social stratification of society. As new digital systems are infused into the world, developed countries are always ahead and the poor developing countries always lag behind. This is also attributable to research-based knowledge development which is largely conducted by institutions in developed countries which are relatively far more resourced than HEIs in developing countries.

Aligned with the Knowledge Gap, also called Digital Divide Theory, the rich, from personal to national levels, will always receive new information and knowledge before the poor. Developed countries acquire the digital systems at a faster rate than the less developed nations. The gap in the knowledge between these two groups tend to increase rather than decrease (Tichenor et al., 1970). The educated are also ahead of the uneducated because of disparities in access to the internet which on its own is the major factor that widens the digital gap (Nie & Erbring, 2000). With the supply of information by internet, new factors emerge that are not captured through traditional media like televisions and radios on which the marginalised depend on. In most African countries, access to the internet is largely restricted generally as those who have access face exorbitant data charges when compared to their counterparts in developed countries. For instance, the average price of 1GB of data in Zimbabwe was US$4.26 in 2022, while in South Africa the average cost was US$2.04. The median price of 1GB of mobile data in Africa was more than US $5 compared to the European Union (EU), where the price was US $3.5 in 2022. According to the Worldwide Mobile Data Pricing 2021 report from Cable.co.uk, which compared the cost of 1GB of mobile data across 6,148 mobile data plans in 230 countries, Sub-Saharan Africa had the most expensive mobile data prices in the world, with six out of the ten most expensive countries in the world. These observations have implications on the extent to which HEIs in developing countries can embrace digitalisation to keep pace with demands of the digital world and global trends. In attempts to address this challenge, Universities in Zimbabwe have set up the Zimbabwe Research and Education Network (ZIMREN) that is intended to be the leading catalyst for research, education and collaboration in the country, while collaborating with global partners by providing networks and other digital transformation infrastructure, systems and tools that meet the requirements of the research and education community. While its impact is still to be realised, the network is expected to help member universities access internet and mobile data at lower costs that are collectively negotiated with internet service providers and through by-passing unnecessary middlemen by developing their own systems and services.

Research Methods

This article is based on a qualitative array of data sources that include documents and policy statements that have emerged since the inception of the digitisation and digitalisation in Zimbabwe HEIs. As Morgan (2022) observes, desk research is particularly useful where researchers may not have the resources or time needed to conduct field research, as was the case in this instance. The desk research mainly included literature search and review of existing academic and non-academic documents that include written unpublished papers, journal articles, reports, policy documents and case studies. Documents for the literature review were identified mainly through searches on various websites of international publishers and organisations.

Data collection

The study was conducted mainly through desk research and personal observation. Though used to a smaller extent, personal observation mainly drew from the authors' personal experience as practitioners in the area of study. The desk research involved reviewing of relevant literature such as research conducted on digitalisation of HEIs in different countries, as well as conceptualisation of competing theories on digitisation and digitalisation of the education sector. Insights and comparisons were drawn from studies in Zimbabwe and other countries of the world. In addition, an extensive and detailed document analysis was also conducted. This provided a good basis and framework for analysing the study issues.

Results

Besides price that was generally cited in different sources, the study examined a wide array of other obstacles to digitalisation, such as lack of knowledge about the advantages of information and communication technology, in order to increase demand for ICTs. Data sources emphasised that to create prospects for change, there was a need to increase incentives and investments in the tele-communications industry and the private sector. COVID-19 altered how young people in sub-Saharan Africa utilise technology. In order to reach students remotely and minimise disruptions to the educational process, UNESCO also advised using open educational resources and platforms that schools and teachers could use (Ozili, 2020). The higher and tertiary education paradigm in Zimbabwe was compelled by the pandemic to adopt the use of information and communication technology (ICT) for open and distance e-learning. Other forms of student support were offered at some Zimbabwean universities, including the University of Zimbabwe (UZ), Bindura University of Science Education (BUSE), and Great Zimbabwe University (GZU), among others. This support came in the form of electronic devices such as laptops and smart phones, data packages that students needed even before the COVID-19 outbreak. However, Flores (2016) cautions that the more one uses electronic devices, the more susceptible their mind is to being controlled by them (Flores, 2016).

The study established that ICT technology was more in use in institutions of higher learning as face-to-face interactions have been largely replaced by open and distance e-learning. To accommodate the majority of students in Zimbabwe, schools and colleges have developed educational resources and offered instruction through a variety of media that include radio, television, WhatsApp, and Google Class as has been demonstrated in the formal education system. Most parents transformed their houses for internet work, workplace learning, and home schooling. However, this has exposed the growing gross socio-economic inequality in the society as education has become more expensive due to the high costs of the gadgets and data that have now become part of normal learning. Differentials between well-resourced schools and affluent families are impacting on access to quality education by students from the different socio-economic backgrounds, thereby further widening the social divide of communities and individuals. Overall, however, internet technology has played a big role in improving information access and education (e-learning) in academic institutions. The opening of information centres in rural communities, mainly at former post offices and distributions of laptops to rural schools as well as the ongoing rural electrification are some of the positive attempts being undertaken by government to address the digital and thereby socioeconomic divide. The Government of Zimbabwe has adopted a policy to leave no one behind in its development thrust as articulated in the National Development Strategy 1 (NDS1).

Digitalisation for Development: A Case of the University of Zimbabwe

The Ministry of Higher and Tertiary Education Innovation Science and Technology Development (MHTEISTD) has set up Innovation Hubs and Technology Parks at several State universities to offer solutions to the nation's development issues and achieve the objectives of the country's National Development Strategy 1 (NDS1) and National Vision 2030. One of the aims of NDS1 is to provide economic opportunities by cultivating a new generation of young people with an entrepreneurial mind and attitude. The Zimbabwean parliament enacted the Centre for Education, Innovation, Research and Development bill into law. The main goal of this law is to establish technological hubs that will organise and harness research and innovation in higher education institutions that include colleges and universities as well as in industry.

Innovation at the University of Zimbabwe is supported by funding from the Ministry of Higher and Tertiary Education, Innovation Science and Technology Development. The institution is committed to the inquiry of new, surprising, and fundamentally useful discoveries in its quest to create and disseminate knowledge that contributes to national development. For instance, in promoting Heritage-based science and technology for industrialisation, the University of Zimbabwe (UZ) has embarked on the Future Grains for Africa programme. This is intended to develop original products such as food, feed, non-food product from small grains such as Finger millet, Pearl millet and Sorghum in trying to create

an avenue to promote consumption of these cereals for food security. The success of this programme will greatly be enhanced by the establishment of a national network of both small-scale and commercial farmers though a robust digital platform that offers online coordination and support services. Departments under the faculty of Veterinary Science have embraced a research strategic plan that seeks excellence in research. This strategy will also generate innovative scientific information and provide solutions to the current and expected future problems in animal health, production and welfare, again availed though a reliable digital platform that is accessible to farmers across the country to augment onsite visits by university academics and support staff working with specific communities.

A report produced by the Global Special Mobile Association (GSMA) in 2019 showed that there were 12 innovation hubs at universities across Zimbabwe. The UZ is amongst the universities that have so far established an innovation hub and agro-industrial park in the country. The University's Innovation Hub is producing innovative research trainees. Other universities who have also established such facilities in the country include: the National University of Science Technology, Midlands State University, Harare Institute of Technology, Zimbabwe Defence University, and the Chinhoyi University of Technology. Examples of outputs from the innovation hub at the University of Zimbabwe include inventions targeting social protection such as the 'smart blind stick' and a pharmacy locator application among others that are at various stages of patenting. The 'smart blind stick' is based on object avoidance technologies to provide efficient navigation solutions for people who are visually impaired. The pharmacy locator application is connected to the Geographic Information System (GIS) and Google maps to locate medication centres or the nearest pharmacy. The pharmacy locator web application helps the public to better access pharmacies and medication centres scattered around towns, cities, and parts of rural areas in the country.

The Zimbabwe Council for Higher Education (ZIMCHE) is the regulator and quality assurance authority of both private and public universities that fall under the Ministry of Higher and Tertiary Education, Innovation Science and Technology Development. Established with its own Act, ZIMCHE is mandated to spearhead the Zimbabwe National Qualifications Framework. It conducts academic and institutional audits to ensure that standards are maintained at all universities in line with Education 5.0 and international benchmarks. The ongoing digitalisation at all higher education institutions will enable seamless coordination of research and other academic activities that ZIMCHE can monitor and evaluate both onsite and virtually. Also, the universities will be able to share both human and material resources through digitally networked learning and teaching facilities across departments, faculties and institutions including industry and other relevant institutions both locally and internationally. This could be enhanced with the revamping of the ZIMREN initiative which could assist in the coordinated approach to develop the necessary software and even hardware to stimulate the digitalisation drive across all HEIs. ZIMCHE has already developed and, through regular institutional audits is enforcing academic standards that emphasise ICT applications in research, teaching, and learning at all HEIs in the country.

Discussion

The study established that most institutions in the Zimbabwe lacked the necessary hardware, software, and staff who were qualified and experienced enough to make the transition from traditional face-to-face interactions to virtual modes. The unexpected advent of COVID-19 forced policymakers and educators to rapidly develop comprehensive measures to lessen the disruption of the education system. The COVID-19 induced sudden and severe change that required students to rely on their ICT devices, which most of them did not have and could not afford, left them unprepared. Many of them were used to in-person courses where they relied on personal interaction with instructors and other students. As a result, they struggled to quickly adapt to the new autonomous learning styles, and many of them were unable to communicate on the virtual platforms that institutions were required to embrace. One such system is the Moodle-based e-Learning Management System (e-LMS) that the University of Zimbabwe adopted and adapted.

With the strong information technology development and use in education, effective tools and teaching approaches need to be further improved for use by educators, students, and administrators. The digital learning revolution has improved the effectiveness of educational institutions by enhancing the level of instruction, management, and working circumstances as well as the performance of faculty members and students. An intelligent global technique to hasten transition to a new standard and enhance educational quality was the use of digital learning. Notwithstanding various issues with technology, courses, teachers, and students, digital learning provided educational institutions with profitable opportunities. Globally, the use of digital systems in education is increasing. These systems include cloud storage, learning management systems, online learning tools, computer-based testing and training programmes, and computing devices for content delivery.

Among the earliest organisations to use the internet for information exchange and enhancing academic collaboration were educational institutions. Higher education institutions consequently became cyber security targets due to their intricate digital footprints in terms of the volume and type of data they contain, their extensive online activity, and their combined computing power. In Zimbabwe, the new curriculum has offered the tertiary education sector a chance to gain from the fiscus and replace the conventional Education 3.0, which did not prioritise industrialisation and innovation, which are crucial elements in the environment of global technological breakthroughs. As a panacea, education 5.0 was introduced, changing the way things are done and improving the previous education 3.0 system.

Implications and Conclusion

It has become evident that higher education institutions must not only encourage students to acquire knowledge but also to develop their critical thinking abilities and enable them to collaborate with other students to co-create knowledge (Farnell et al., 2021). This can happen between students in different regions once they digitalise. Students, their needs, and their connections to every aspect of the institution must be the emphasis of HEIs. Customised learning paths must be created for each learner. Additionally, student opinions, perceptions, and experiences need to be considered in institutional strategies when designing traditional process maps, and special emphasis must be paid to the relationship and communication mechanisms they employ.

In order to collaborate on this transdisciplinary path, there is need to engage with stakeholder groups including HEIs, NGOs, governments, international organisations, migrant associations, and human rights organisations. There is also a need to share experiences learned across HEIs, particularly during the COVID-19 pandemic, to improve on weaknesses observed and further develop digital learning and teaching to embrace Cybergogy as a new paradigm in technology-based learning. Cybergogy needs to be explored deeper as a pattern of education and skills for 21st Century learning that is based on new epistemologies that might even challenge pedagogy and andragogy and delve deeper into the theoretical underpinnings of digital learning and deep thinking. The implications of digital-based learning are already challenging assumptions that have so far guided conventional teaching and learning strategies and practice based on traditional theories of education. For instance, virtual access to information is already challenging the role of teachers and lecturers, schools, colleges, and universities as well as both teaching and assessment methods in the context of developments in Artificial Intelligence (AI) such as the Chat Generative Pre-training Transformer (ChatGPT) that has ushered in both opportunities and challenges related to the authenticity of academic output of both researchers and students. National and international cooperation is crucial in the future, not only for sharing computer tools, platforms, and experiences in digital learning, but also for collaborative research in rethinking education theory and practice as well as capacitation of both experienced and new educators for their changing roles. There is need to rethink how citizens and professionals must be developed in a digital age, reflect on contemporary society and the new models of knowledge creation that it necessitates, and consider the level of digital inclusion (rather than focusing on the digital gap) that is required to achieve the transformative education that HEIs must ensure.

Also, while HEIs have largely embraced digitalisation as inevitable, policy pronouncements have not been explicit but largely stop at implying the need to digitise and digitalise. For instance, Strategic Plans of the Ministry of Higher and Tertiary Education Innovation Science and Technology Development as well as those of HEIs such as the University of Zimbabwe do not provide specific objectives on digitalisation per se. Given the increasingly rapid developments in information and communication technologies under the current Fourth Industrial Revolution and even Fifth and Sixth, digitalisation needs a distinct policy at both Ministry and HEIs levels, spelling out its full parameters to guide and prepare for its 'disruptive' development and implications for HEIs. Institutions of higher learning need to review their strategic statements such as visions and missions to embrace digitalisation more directly as an enabler for all their goals. Digitalisation need to buttress HEI missions and processes that lead to internationalisation, innovation, and industrialisation.

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